

Customer No.: 31561
Application No.: 10/708,017
Docket No.: 12433-US-PA

REMARKS

Present Status of the Application

Claims 1-4 remain pending of which claims 1-4 have been amended to more explicitly describe the claimed invention. Amendment to claim 1 is fully supported at FIG. 2A and 2B, and paragraph [0018]. Therefore, it is believed that no new matter adds by way of amendment to claims or otherwise to the application.

For at least the following reasons, Applicant respectfully submits that claims 1-4 are in proper condition for allowance. Reconsideration is respectfully requested.

Discussion of Objection to Specification

The Office Action objected to the Title of the Invention for not being descriptive, and stated that a new title is required that is clearly indicative of the invention to which the claims are directed.

In response thereto, Applicants would like to thank the Examiner for pointing out the informalities and suggesting a Title, and accordingly amended the Title of the Invention as suggested. After entry of the amendments to Title, it is believed that the above objection can be overcome. Reconsideration is respectfully requested.

Discussion of the claim rejection under 35 USC 103

The Office Action rejected claims 1-4 under 35 U.S.C. 103(a) as being unpatentable over Behl et al. (US-6,104,607, hereinafter Behl).

Applicants respectfully disagree and traverse the above rejections as set forth

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below. The proposed independent claim 1, as amended, is allowable over Behl for at least the reason that Behl substantially fails to teach, suggest or disclose every features of the claimed invention. More specifically, Behl substantially fails to teach, suggest or disclose a cooling fan module with protective screen comprising at least *[a housing having at least a mounting space, an air inlet and an air outlet, wherein the mounting space connects the air inlet to the air outlet, and wherein the air inlet is exposed within an interior of the portable electronic device and the air outlet is exposed to exterior of the portable electronic device; and a screen set on the housing covering the air inlet and located vertically above the fan set]* as required by the proposed amended independent claim 1. The advantage of the above features is that at least the mounting of the screen on the air outlet, which would otherwise bump into external objects may be effectively avoided.

Applicants respectfully submit that, conventionally, to prevent any small conductive objects from getting inside the notebook computer through the fan module, a screen with a large number of meshes is often mounted on the air outlet of the fan module, and the safety specification stipulates that the maximum pitch between adjacent meshes in a screen must not be greater than 2mm. Since the screen mounted on the air outlet may actually bump into other external objects, the screen must have sufficient strength to withstand such impacts without major damages. Hence, the safety specification of most portable electronic device also stipulates that the threads constituting the screen must have a diameter at least 0.45mm. However, with an increase in the diameter of the threads forming the screen, percentage opening in the screen is reduced leading to drop in

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the convection efficiency of the airflow produced by the fan module for cooling the notebook computer. In order to overcome these problems, the present Inventors propose disposing the screen on the housing covering the air inlet so that the hot air being blown out the electronic device is not retarded by the screen with small openings which would otherwise causing a drop in the convection efficiency of the airflow produced by the fan.

Instead, Behl substantially teaches that heat buildup due to many electronic devices are compacted into a small case is a major problem, for example, INTEL PENTIUM.RTM class processor, is known for generating excessive amounts of heat. Other processors, Disk drives and other components also generate significant amounts of heat. In a small case such as a laptop computer, these and other devices may cause overheating and ultimately breakdown the portable computer. To overcome these problems, Behl proposes a PC card having a cooling fan and a generally uniform thickness that fully insert into a standard PCMCIA card slot of a portable computer or other electronic device.

Thus, Applicants respectfully submit that the purpose and the objective of the claimed invention are totally different from those of Behl. In other words, Behl fails to recognize the problems facing the present Inventors for which the present Inventors propose a solution as described above.

Furthermore, Behl, in FIG. 4 and related texts, substantially teaches or discloses a cooling apparatus 10 including a hollow card 22 having a first end 24 with an air inlet 26, a second end 28 with at least one air vent 30 and a fan 38. The fan 38 attaches to the first end 24 for blowing air through the air conduit 36. When the fan 38 draws air

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through the air inlet 26, the fan forces the air through the air conduit 36 and out of the second end 28 via the vents 30. In FIG. 4, Behl clearly shows that the air inlet 26 on which an air filter 44 is disposed is in fact exposed to the exterior of the portable electronic device and the air vent 30 is inserted into the card slot of the portable electronic device.

Furthermore, Behl, in FIG. 5-7 and related texts, substantially shows a portable computer 12 having a PC slot 20 and a card 500, wherein the card 500 is fully inserted into the PC slot 20. The card 500 includes a housing 514 with a top cover 512, a first end 511, a connector 510, a fan 502, a fan motor 516 and leads 508. The housing 514 has an open end 520, an air filter 522 and vents 524. The air filter 522 removeably press-fits in the open end 520. The fan motor 516 rotates the fan 502 to draw air in through the open end 520 and out through the vents 524. In other words, the air filter 522, which is fitted in the open end 520 (air inlet), is substantially located laterally adjacent to the fan 502.

Thus, it is clear that Behl fails to teach, suggest or disclose a cooling fan module for a portable electronic device comprising at least *[a housing having at least a mounting space, an air inlet and an air outlet, wherein the mounting space connects the air inlet to the air outlet, and wherein the air inlet is exposed within an interior of the portable electronic device and the air outlet is exposed to exterior of the portable electronic device; and a screen set on the housing covering the air inlet and located vertically above the fan set]* as required by the amended proposed independent claim 1, instead Behl, in FIG. 4, substantially teaches or discloses a cooling apparatus 10 wherein the air

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inlet (26) on which an air filter (44) is disposed is in fact exposed to the exterior of the portable electronic device and the air vent (30) is inserted into the card slot of the portable electronic device; or with reference to FIG. 5-7, Behl substantially teaches a cooling apparatus, that can be inserted into the electronic device, wherein both the air inlet (520) and the air filter (522) fitted in the air inlet (520) are substantially located laterally adjacent to the fan (502) (FIG. 5-7).

In other words, the structures of the cooling apparatus of Behl disclosed in FIG. 4 and FIG. 5-7 are substantially different from that of the claimed invention as claimed in the amended proposed claim 1. Therefore, for at least the above reasons, the amended proposed independent claim 1 patently defines over Behl.

Accordingly, Applicants respectfully submit that Behl cannot possibly meet the amended proposed independent claim 1 in this regard.

Claims 2-4, which directly or indirectly depend from the independent Claim 1, are also patentable over Behl at least because of their dependency from the allowable base claim.

For at least the foregoing reasons, Applicants respectfully submit that claims 1-4 patently define over Behl. Reconsideration and withdrawal of above rejections is respectfully requested.

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CONCLUSION

For at least the foregoing reasons, it is believed that all pending claims 1-4 are in proper condition for allowance. If the Examiner believes that a conference would be of value in expediting the prosecution of this application, he is cordially invited to telephone the undersigned counsel to arrange for such a conference.

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Respectfully submitted,


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